

CLAIMS

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5 1. Nucleotide sequence derived from the 5' sequence of the murine villin gene, having a size of 9 kb on an agarose gel, or a fragment thereof, comprising the nucleotide elements having a cis-regulatory activity that promotes the transcription of the murine villin gene.

2. Nucleotide sequence according to Claim 1, which is the sequence extending 5.5 kb upstream and 3.5 kb downstream from the transcription initiation site of the murine villin gene.

10 3. Nucleotide sequence according to claim 1 which is the sequence identified as Seq ID NO: 1.

4. Nucleotide sequence according to anyone of claims 1 to 3, which comprises the nucleotide fragment extending from the HS I to the HS IV Dnase I-hypersensitive sites.

5 5. Nucleotide sequence according to anyone of claims 1 to 4, comprising the nucleotide fragment extending from the HS IV Dnase-hypersensitive site to the translation initiation site of the murine villin gene.

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6. Nucleotide sequence according to claim 1, which comprises the nucleotide fragment extending from the nucleotide at around position -100 upstream from the transcription initiation site, to the translation initiation site.

20 7. Nucleotide sequence according to claim 1, which comprises the nucleotide fragment extending 3.5 kb upstream from the transcription initiation site to the transcription initiation site and further comprises the translation initiation site.

8. Nucleotide sequence according to claim 1, which comprises the nucleotide fragment extending from around the nucleotide at position -480 from the transcription initiation sequence, to the translation initiation site.

25 9. Nucleotide sequence according to claim 1, which is the sequence extending 3.5 kb upstream from the transcription initiation site to the translation initiation site, provided the region corresponding to intron 1, located between said sites is deleted, or deleted in part.

Sub C1

10. Nucleotide sequence according to anyone of claims 1 to 9, which is mutated by deletion of one or several nucleotides, within the nucleotide fragment of 5.5 kb corresponding to intron 1 extending from position 47 starting from the transcription initiation site, provided that said mutation does not affect the presence of the HS II Dnase I-hypersensitive site.

11. Nucleotide sequence according to anyone of claims 1 to 8, which comprises nucleotide regions having a regulatory activity affecting the level of expression of the murine villin gene.

12. Nucleotide sequence according to claim 1, which is derived from the nucleotide sequence of the murine villin gene having a size of 9 kb on an agarose gel and extending 3.5 kb upstream from the transcription initiation site and 5.5 kb downstream from said site, or a fragment thereof, said nucleotide sequence or fragment thereof have a regulatory activity on the level of expression of the murine villin gene in intestine cells and/or in transgenic mice.

13. Recombinant nucleotide sequence comprising a first nucleotide sequence according to anyone of claims 1 to 12 and a second nucleotide sequence for which a tissue specific targeted expression in epithelial intestine cells is sought.

14. Recombinant nucleotide sequence according to anyone of claim 13, wherein the second nucleotide sequence is a sequence encoding a determined polypeptide.

15. Recombinant nucleotide sequence according to anyone of claims 13 to 14, wherein the second nucleotide sequence is a sequence of therapeutic interest.

16. Recombinant nucleotide sequence according to anyone of claims 13 to 15, wherein the second nucleotide sequence is an oncogene.

17. Recombinant nucleotide sequence according to claim 13, wherein the second nucleotide sequence is a tumor suppressor gene.

18. Recombinant nucleotide sequence according to claim 13, wherein the second nucleotide sequence encodes an immunoglobulin or a fragment thereof, especially a variable fragment thereof.

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19. Recombinant nucleotide sequence according to anyone of claims 13 to 18 which further comprises a third nucleotide sequence consisting of a reporter sequence under the control of said first nucleotide sequence.

5 20. Recombinant nucleotide sequence according to anyone of claims 1 to 19 wherein the second nucleotide sequence is placed under the control of an inducible system.

21. Recombinant cell comprising a recombinant sequence according to anyone of claims 13 to 20.

22. Recombinant cell according to claim 21, which is an epithelial cell originating from the intestinal tract.

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10 23. Recombinant cell according to claim 22, which is a stem cell.

24. Recombinant cell according to claim 22, which is a differentiated cell.

25. Recombinant cell according to claim 21, which is an epithelial cell originating from the kidney proximal tubules.

26. Recombinant epithelial cell according to anyone of claims 22 to 25 which is immortalized.

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27. Transgenic animal expressing a recombinant nucleotide sequence according to anyone of claims 14 to 21.

20 28. Transgenic animal according to claim 27 which is a Vertebrate especially a non human mammal, a bird or a fish or which is an Invertebrate especially Drosophila or a Nematode like C. elegans.

29. Transgenic animal according to claim 28 which is a mouse.

30. Process for the preparation of a transgenic animal, especially a transgenic mice comprising the steps of:

- administration of a transgene into the pronuclei of fertilized eggs of mice,
- enabling the development of the recombined eggs to recover transgenic mice (founders) and verifying the presence of the transgene,
- if appropriate crossing the founders with non transgenic mice.

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